Amendment to the Claims:

1. (Currently Amended) A method of ~~monitoring~~ compensating for MR image distortion attributable to a magnetic field drift of a magnetic resonance imaging apparatus, the method comprising the steps of:

- performing a first data acquisition by a first magnetic resonance signal ~~being caused by~~ corresponding to a central k-space line as first echo time after a first excitation,

- determining a first phase of the first magnetic resonance signal ~~an echo time after the first excitation~~,

- performing a second data acquisition by a second magnetic resonance signal corresponding to the central k-space line a time interval after the first data acquisition[[,]] ~~the second magnetic resonance signal being caused by~~ and a second echo time after a second excitation,

- determining a second phase of the second magnetic resonance signal ~~the echo time after the second excitation~~,

- determining a shift of a resonance frequency based on a difference of the first and second phases and the first and second echo times,

- applying the determined resonance frequency shift to compensate for the magnetic field drift,

- acquiring a plurality of magnetic resonance signals corresponding to the central and a plurality of other k-space data lines and compensated for the magnetic field drift,

- generating a magnetic field drift compensated MR image from the plurality of acquired magnetic resonance signals.

2. (Original) The method of claim 1, whereby the first and second data acquisition are performed using a signal shot EPI method.

3. (Original) The method of claim 1, whereby the first and second data acquisitions are performed by means of a gradient echo sequence method.

4. (Original) The method of claim 3, whereby a k-space is scanned and second data acquisitions are performed intermittently to determine second phases in order to continuously monitor the shift of the resonance frequency.

5. (Original) The method of claim 4, whereby the second data acquisitions are performed after fixed time intervals.

6. (Previously Presented) The method of claim 1, further comprising compensating the magnetic field drift by changing the frequency of the excitation in accordance with the shift of the resonance frequency.

7. (Currently Amended) ~~The~~ A method of ~~claim 1, further comprising~~ compensating for magnetic field drift during magnetic resonance imaging, the method comprising:

- exciting magnetic resonance in a magnetic field,
- collecting magnetic resonance echoes phase-encoded to each of a plurality of lines of k-space with an EPI or gradient echo sequence,
- determining a first phase of a first magnetic resonance echo corresponding to a selected one of the k-space lines at a first echo time after exciting the magnetic resonance,
- determining a second phase of a second magnetic resonance echo corresponding to the selected one of the k-space lines at a second echo time after exciting the magnetic resonance,
- determining a magnetic field drift based on the first and second phases and the first and second echo times,
- compensating for the magnetic field drift by adjusting the magnetic field,
- generating an image from the magnetic resonance echoes collected at least partially with the adjusted magnetic field to compensate for magnetic field drift.

8. (Previously Presented) The method of claim 1, further comprising comparing the shift of the resonance frequency to a threshold value and compensating the magnetic field drift if the threshold value is surpassed.

9. (Previously Presented) The method of claim 1, whereby the first and second phases are determined in the time domain.

10. (Previously Presented) The method of claim 1, further comprising performing a Fourier transformation of the first and second magnetic resonance signals and determining the first and second phases in the frequency domain.

11. (Currently Amended) A computer program product, in particular digital storage medium, for monitoring a magnetic field ~~drift~~ shift of a magnetic resonance imaging apparatus and generating magnetic field shift compensated diagnostic images, the computer program product comprising program means being adapted to perform the steps of:

- determining a first phase of a first magnetic resonance signal corresponding to a preselected line of k-space an echo time after a first excitation,
- determining a second phase of a second magnetic resonance signal corresponding to the preselected lines of k-space the echo time after a second excitation, whereby the second magnetic resonance signal is acquired a time interval after the first magnetic resonance signal,
- calculating a shift of a resonance frequency based on a difference of the first and second phases,
- compensating for the shift of the resonance frequency,
- reconstructing a diagnostic image from magnetic resonance signals corresponding to the preselected and other lines of k-space compensated for the shift of the resonance frequency.

12. (Original) The computer program product of claim 11, the program means being adapted to continuously monitor the shift of the resonance frequency.

13. (Previously Presented) The computer program product of claim 11, the program means being adapted to control an excitation synthesiser in accordance with the shift of the resonance frequency.

14. (Previously Presented) The computer program product of claim 11, the program means being adapted to control the magnetic field in accordance with the shift of the resonance frequency.

15. (Currently Amended) A magnetic resonance imaging apparatus comprising processing means:

for determining a first phase of a ~~first magnetic resonance signal~~ first occurrence of a preselected line of k-space an echo time after a first excitation,

for determining a second phase of a second ~~magnetic resonance signal the echo time after a second excitation~~ occurrence of the preselected line of k-space, the second ~~magnetic resonance signal~~ occurrence of the preselected line of k-space being acquired a time interval after the first ~~magnetic resonance signal~~ occurrence of the preselected line of k-space, ~~and~~

for calculating a shift of a resonance frequency based on a difference of the first and second phases and the time interval, and

for reconstructing an image from a plurality of lines of k-space compensated for the calculated resonance frequency phase shift.

16. (Currently Amended) The magnetic resonance imaging apparatus of claim 15 having display means for displaying at least one of the shift of the resonance frequency and the shift compensated image.

17. (Previously Presented) The magnetic resonance imaging apparatus of claims 15, further comprising control means for controlling the generation of the excitations in accordance with the shift of the resonance frequency.

18. (Previously Presented) The magnetic resonance imaging apparatus of claim 15, further comprising control means for controlling of the magnetic field in accordance with the shift of the resonance frequency.

19. (New) The computer program product of claim 11, wherein the preselected line of k-space is a zero-phased line (k=0).

20. (New) The magnetic resonance imaging apparatus of claim 15, wheren calculating the resonance frequency shift includes:

dividing the difference of the first and second phases by 2π times the time interval.